The Border-Land Between Physiology and Psychology.—Singular Judgment. From the Rev. W. G. DAVIES, B.D., Chaplain of The Joint-Counties Asylum, Abergavenny.

That there are two methods by which to approach the study of mind—the one inward and reflective, the other outward and transitive, including more especially the anatomy and physiology of the brain and nervous system—is by high authorities, even in physical and biological science, now generally admitted.

It is necessary, says Dr. J. Crichton Brown, in the address published in the October number of this Journal for 1878, that we should know the intimate structure of the brain and the pathological changes to which its tissues are liable; but we cannot rest in this knowledge, for to essay to understand mental processes by the microscopic appearances of dead brain-cells is infinitely more absurd than it would be to endeavour to explain a summersault by the aspects of an ultimate sarcous element, the distance between neurility and thought being vastly greater than between contractility and athletic feat.

Mr. Romanes, in a lecture on "Animal Intelligence," delivered at the British Association, held in Dublin, and published in the "Nineteenth Century" for October, 1878, takes a similar view of the question—

That psychical phenomena are intimately associated with physical phenomena is a fact that does not admit of one moment's dispute; but concerning the nature of this association, Science must declare, not merely that it is at present unknown, but that, so far as she is able to discern, it must for ever remain unknowable.

In a fine article, entitled "Virchow and Evolution," in the same periodical for November, 1878, Professor Tyndall also declares—

That the brain of man, the organ of reason and sense, without which he can neither think nor feel, is also an assemblage of molecules acting and reacting according to law. Here, however, the methods pursued in mechanical science come to an end; and if asked to deduce from the physical interaction of the brain molecules the least of the phenomena of sensation and thought, we must acknowledge our helplessness. The association of both with the matter of the brain may be as certain as the association of light with the rising of the sun; but whereas in the latter case we have unbroken mechanical connexion between the sun and our organs, in the former case logical continuity

disappears. Between molecular mechanics and consciousness is interposed a fissure over which the ladder of physical reasoning is incompetent to carry us. We must, therefore, accept the observed association as an empirical fact, without being able to bring it under the yoke of *à priori* deduction.

In these quotations we have the fact fully conceded that mental operations do not admit of being expressed in terms of molecular movement in the brain; they must be described through their attributes as discovered by pure psychological observation. No statement concerning a mental process can be verified except by putting the mind to perform that process. I cannot know what judgment is except by judging, reason except by reasoning, seeing except by seeing; for a man born blind can have no intuitive knowledge of light and colours. The two factors in mental science—the psychological and the physiological, the one relating to the mental function, its characteristics and laws, the other to the organ, its structure and movements—must evidently, then, be studied by two distinct methods of observation. But when the facts, in either department, are thus ascertained, their mutual comparison becomes imperative, and much light will manifestly be gained by the act.

The subject treated of in this paper, although one relating to man's knowing at its very threshold, knowing in its first association with the molecular mechanism of the brain, nevertheless, involves the psychological method. Before entering, however, upon this examination, it seems necessary that I should make a few remarks both on the peculiar nature of knowing and on the method which has to be pursued in this inquiry.

Knowing is, in a certain sense, the beginning, the *principium*. It comes between us, regarded as intelligent beings, and all else. Neither mind nor matter exist for us, except as revealed by knowing. We having nothing more ultimate, nothing more trustworthy, than the authority of this revealing principle for the existence of anything, whether of self or of not-self. The mind as known, matter as known, everything as known, to these we, as intelligent beings, are completely shut up; and the great problem which philosophy has to solve is of the following nature:—In what respects, and to what extent, is knowing trustworthy in its revealings—in other words, proof against scepticism? Physiologists teach—and, no doubt, rightly—that knowing, in all its grades, involves the brain and its molecular movements; but what is their

authority for this teaching? Knowing, knowing alone. In ultimate analysis, knowing is for us intelligent beings the starting point; but then, when any declaration of knowing is criticism-proof, that declaration must be accepted as the truth. For instance, if it is a clear revealing of knowing that, in the Order of Evolution, the brain and nervous system is presupposed by all knowing, and if this revealing can be shown to be superior to scepticism, then this declaration is a truth which cannot be disputed. So far as to the peculiar character of knowing.*

As to the method which psychological observation involves, I take the following view:—Affecting closely the question which we have here to examine, primary or singular judgment is the law that the more obvious and opportune becomes organised in the mind, acted upon, as it is, by its surroundings, prior to the less obvious and inopportune. Thus, general judgment and deduction have, in explicit growth, for ages preceded singular judgment and induction. The cause of this is to be sought in the fact that the sciences at first accessible to human research were those that imply the deductive method—for example, arithmetic and geometry—sciences in which the first principles are so simple and obvious, self-evident as they have been called, that there is involved in the apprehension of them no disclosing of that form of thought which the method of acquiring first principles in science of a later date brings to light.

Since deductive reasoning was objectively realised much before inductive, it follows that the logic of general judgment, of that which supplies deduction with its premises, must also have acquired advanced growth at a time when the logic of singular judgment, of that which is concerned with a delicate and microscopic examination of real unit objects, was in its infancy.

There was, indeed, in early times, much to draw the mind in the direction of resemblance and analogy. It was mainly under the influence of this attraction that language acquired full growth, which, at first embracing signs only of obvious and simple objects, had, by the aid of analogy, out of the root words in use, to adapt these so as to designate mental and supersensuous objects. The induction of the ancients was also mainly spontaneous generalization from experience

* The reader may find this question treated at some length by the author, in an article styled "The Veracity of Consciousness," in "Mind," January, 1877.

begotten by events that uniformly run in the same groove. It was only when earnest inquirers, bent on seeking the truth, had acquired a distaste for inaccurate observation and fanciful generalization that the need of judgment of a rigidly discriminating caste became fully recognised.

Every science includes perceptions, conceptions, inductions, and deductions, in all which there is a subjective element with an objective relation or reference. The subjective is the invariable, the objective the variable, element in science. If we regard this as the form, that as the matter, we shall then be able to state that the form is that in which the sciences resemble each other, the matter that in which they differ from each other.

Now, the form of thought is the mind's method of discerning and constructing scientific truth; and it seems to me that as soon as inquiry commences to sail beyond the sight of its native shore of spontaneity, inquiry must direct its course by following some tendency or embodiment of form of which, in its coasting voyages, it has already gained some knowledge. This tendency, at the outset, and for a long time afterwards, manifests itself, to use a chemical phrase, in the engaged state, the form being confused with the matter, without a prominent manifestation of which matter there is no display of the form. In such a state, however, the combination of matter and form—for instance, Euclid's "Elements of Geometry"—constitute one of the real helps of Bacon, an applied logic, without assistance from which the mind would in vain strive to grope its way out of darkness into light.

Futile is the attempt, then, to find out what scientific mental processes are, unless the mind have previously produced objective results which embody these processes, and unless, to take a physiological view of the question, it have so wrought that through the law of repetition, acting on the nutritive system, the brain molecules have been so organized as to be able to carry on their movements with prompt facility and vigour. There could be no deductive logic, for example, till the easier sciences, which involve deductive reasoning, had as an abridged embodiment of its form, or as an enthymeme, come into existence. In like manner, there can be no complete inductive logic, till some one succeeds, by the filtration of its form, to separate the same from the abundant scientific wealth that has now been amassed. The uniform process is lurking in the multiform matter, and

waits complete finding; but—and this is the fact to which I invite special attention—until the brain has become sufficiently organized to give objective realization to a mental process, the reflective observer, who seeks to be intimately acquainted with such process, has but a *tabula-rasa* to examine, even when, in simple cases, the process acts fully in a spontaneous or implicit manner. The main reason, therefore, why singular judgment, not to mention Induction, has not yet attained its complete logical development is owing to the fact that its formal development cannot precede, but must follow in the wake of the crude or applied logic which contains it.

I now proceed in my attempt to mark the place held, in the Order of Evolution, by the Singular, in Judgment or Belief.

The objects by which we are compassed are single objects, single cows and sheep, single trees and houses, single stars by night. There is, in Nature, no such thing as a general object.

It must be acknowledged, says Reid, that the objects we perceive are individuals. Every object of sense, of memory, of consciousness, is an individual object. All the good things we enjoy or desire, and all the evils we feel or fear must come from individuals; and I think we may venture to say that every creature which God has made, in the heaven above, in the earth beneath, or in the water under the earth, is an individual. "This," observes Hamilton, "Boethius has well expressed—*Omne quod est, eo quod est, singulare est.*"*

As the multitude of common nouns, says Cardinal Newman, have orginally been singular, it is not surprising that many of them should so remain still in the apprehension of particular individuals. In the proposition, "Sugar is sweet," the predicate is a common noun as used by those who have compared sugar in their thoughts with honey or glycerine; but may be the only distinctively sweet thing in the experience of a child, and may be used by him as a noun singular.—The terms of a proposition, he remarks, do or do not stand for *things*. If they do, then they are singular terms, for all things that are, are units.†

Professor Jevons, a great champion on behalf of the supremacy of the Law of Similarity in the realm of thought, yet points out that—

As the comprehension of general notions requires higher intellect than the apprehension of singular and concrete things, it seems

* "Hamilton's Reid," p. 389.
† "Grammar of Assent," p. 11, and p. 22.

natural that names should, at first, denote individual objects, and should afterwards be extended to classes. We have a glimpse of this process in the case of the Australian natives, who had been accustomed to call a dog Cadli, but when horses were first introduced into the country they adopted this name as the nearest description of a horse.*

Here we have a concurrence of testimony pointing to the fact that the multitude of common nouns have, as Cardinal Newman says, orginally been singular; and this singular element, be it observed, is retained even when terms become general; for since they stand for things they must necessarily stand for units.

The Law of Contiguity, in the doctrine of Mental Association, by which different mental modes are associated together; Division, in Logic, which is accomplished by attending to differences; the connotation of names, which relates to the embracing by a whole, the whole of Intension, of parts, as we shall see, which differ from each other; thought expressing itself without words, in the case of intelligent brutes, deaf mutes, and idiots, as shown by Mr. Romanes, in the lecture already referred to—afford so many indications that as much prominence is due to the cognition of the Singular as to that of the General, although, indeed, as Professor Jevons states, the comprehension of general notions requires higher intellect than the apprehension of singular and concrete things, that is, in the Order of Evolution, the General is evolved out of the Singular.

Mr. Romanes, in the lecture referred to above, observes that—

> Among idiots, as among animals, the faculty of forming special concrete ideas attains a comparatively high degree of development. But as regards the power of forming abstract ideas, which depend on the logic of signs, it is only among the very highest class of idiots that any such power is apparent at all; and even here, it is astonishing in how very small a degree this power is exhibited.

And of deaf mutes, before they have been educated, he says—

> They think in the most concrete forms, as shown by their telling us that so long as they were uneducated, they always thought in pictures. Moreover, that they cannot attain to ideas of even the lowest degree of abstraction, is shown by the fact that in no one instance have we been able to find evidence of a deaf mute who, prior to education, had evolved for himself any form of supernaturalism.

* "Elementary Lessons in Logic," chapter vi., p. 47.

From a careful analysis of the Order of Evolution in which mental processes are connected with each other, this is precisely what I should expect to find in the case of deaf mutes and others denied the average complement of mental powers; still I am disposed to think that to make the power of evolving any form of supernaturalism the test of a person's ability to form any abstract notion; is going too far. I believe that an intelligent deaf mute is capable, in simple instances, of forming typical notions, in other words, of calling up a mental image, say of an elephant which he has seen, that shall represent to his mind the whole race of elephants. While on this subject, I would also refer to the interesting articles on "Thought without Words," contributed by Dr. Ireland to this Journal, especially where he describes thought as expressing itself in action, which is manifestly the sphere of the concrete and singular. I would add that the achievements of the human hand, both in the Fine Arts and the Industrial, open up to contemplation a large field in which singular thought is greatly predominant; and were the human race deprived of the Hand, who can estimate the amount of decadence that would follow?

Now, to come into closer contact with the subject under examination, namely, Singular Judgment, notice, in the first place, that the following analysis has to deal with mental processes that already exist as objectively realised, and did they not, could not, as we have seen above, be made objects of reflective research. Notions involving sensation, perception, conception, reasoning, and other operations, are mingled together in the mind of the reflective observer. These, when objectively realized, or existing in the engaged state, have to be analyzed and nicely discriminated; and logicians have done much in effecting this end. In proportion as this analysis is successfully accomplished, the logical order in which mental processes arise comes into view. It is with this order, which, indeed, is the Order of Evolution, that I am principally concerned in this contribution; and it is my intention to show that, in this order, every general judgment supposes singular judgments. If space permitted, I might also proceed to show that both Induction and Syllogizing must, as the condition of being general, be, at the root, singular processes of thought, thus challenging, on behalf of the Singular, an importance which has not hitherto been awarded to it.

In the Order of Evolution, consciousness, in its origin, is

presentative. What becomes obvious to a reflective observer, after a little practice, is the fact that whatever is revealed to us in intuition is so revealed as a whole or group, possessing an individual or unit character, as "a (one) house," "a tree," "a ship." This is mere presentation in sense. In the Order of Evolution, there is nothing for us, intelligent beings, prior to presentations, either in sense or other inlet to the Mind. In presentations, and these alone, are we placed in primary relation with things that are.

The mental process next in order to presentation is Singular Perception or Judgment, and this is here set forth under the following heads:—

A Presentation is positively judged to be existent.

The intellectual act here concerned I call Singular Perception, which is, with its implications in Sense or Presentation, the radical process of intellect. Singular Perception, among other attributes which shall be enumerated in order, judges an object to be possessed of existence. Concrete, individual, unit, existence, is, of course, first apprehended, for it is on this condition alone, as we shall see below, that common existence is capable of being cognized.

I fail to see that Perception and Judgment or Belief are separate processes; or that there is any act of intellect corresponding to the Simple Apprehension set down in so many manuals of Logic, and said to be the origin of terms. When I perceive, I judge or exercise Belief; and Belief can only be expressed in a proposition or asserting sentence. Hamilton, speaking of Reid, says—"He has the merit among modern philosophers of first approximating to the recognition of judgment as an element or condition of consciousness in general."* Reid, indeed, was strongly impressed with the fact that Belief—Judgment—is an essential element of all the leading operations of the mind—

> For a man, he says, cannot be conscious of his own thoughts without believing that he thinks. He cannot perceive an object of sense without believing that it exists. He cannot distinctly remember a past event without believing that it did exist.†

Reid thoroughly dissents from Locke's position that knowledge results from the perception of the agreement or dis-

* "Hamilton's Reid," pp. 878, note, and 934.
† *Ibid,* p. 327.

agreement of our ideas. For how can these ideas be realized or known without Belief or Judgment? Then as to terms (*termini*), these imply the Proposition, that is, Judgment expressed in words.

I. Statement.—*A Presentation is positively judged or affirmed to exist as a unit Whole.*

Let it be noticed that the Proposition invariably has, in the Subject, the name of a whole or what is understood as its equivalent, as "The Good are wise." This whole is styled the Whole of Intension, of which, before we conclude, we shall have more to say.

II. Statement.—*The Whole is differentially judged to be non-identical with other wholes.*

In Singular Perception, we exert not only a positive or apprehending, but also a differentiating or discriminating judgment. We assert that this whole is not that and the other whole. The functions of affirming and denying imply each other. There could be no affirming of the positive existence of objects, unless we could clearly see that they stood quite aloof in their oneness from other objects. When a large number of things are known to exist as severally one, it must also be known that they exist as many, that is, as non-identical with each other. Were there no cognition of difference, there could be no approach to thought, of the apprehension of this and that, this and the rest. For differentiation, denying, stands, as much as positive apprehension, affirming, at the root of all intellectual effort.

III. Statement.—*The Whole is positively judged to be possessed of parts or qualities.*

When the whole is attended to, or carefully judged, it is, as far as is practicable, analysed into its several parts or qualities; and when these are singled out, there are before the mind two aspects in mutual relation. When the Whole is named, as "well," and one of its qualities is also named as "deep," and the whole and the quality is considered in this relation, the latter is expressed by the proposition, "The Well is deep," the purport of which proposition is that the whole "Well" is judged to be possessed of the quality "deep."

IV. Statement.—*The Whole is differentially judged to be possessed of qualities that are mutually non-identical: the attribute of existence and of time being, however, in one respect, an exception.*

The Whole here named is the Whole of Intension, and one of its peculiarities is the fact that the qualities of which it is composed are distinct from each other, both in number and nature. If the Whole be expressed by A, and the qualities by *b c d e*, then we perceive that in the Whole (A=*b c d e*), A=*b*, and A=*c*, &c., are mutually non-identical, consequently cannot be affirmed of each other.

But the attribute of existence and of time, in so far as the several qualities involve these in common (not otherwise), must not be included among the non-identical qualities. Of these attributes we shall have more to say when we come to treat of resemblance.

V. Statement.—*The Whole is positively judged to be one with the sum of its qualities.*

In an affirmative judgment, one and the same Whole, or part of the Whole, is referred to by both the Subject and the Predicate. Let the whole be represented by A, and its qualities by *b c d e*, then the Whole A is affirmed to be one with its qualities *b c d e;* or A is affirmed to be in part of its intension *b*, in another *c*, and so on. Hence it can be seen that, in Singular affirmative propositions, there is a connotative or intensive equation expressed by the copula between the two terms.

This is the ground given by Hobbes of the theory of predication, which J. S. Mill has adopted, and more fully developed; but not the sole ground, as the present analysis will serve to show.

VI. Statement.—*The Whole is differentially judged to be distinguishable from its qualities separately regarded.*

Although in affirmative propositions identity is asserted between the Subject-object and the Predicate-object, there is, except in such merely verbal propositions as "A spade is a spade," "A sovereign is a pound," a relation of contrast expressed between the Subject and the Predicate. In the proposition, "A triangle is a three-sided figure," the Subject names the object as a Whole, while the Predicate names its qualities as *b c d e*.

The *rationale* of this contrast may, I think, be stated as follows :—If the Whole be A, and the qualities *b c d e*, then (A=*c d e*) is different from (A=*b*), (A=*b d e*) from (A=*c*), and so on throughout; that is, the Whole, regarded as the sum of every quality but the one predicated of it, is non-identical with the Whole regarded as identical with that quality. A=*c d e* is non-identical with A=*b*. It is to propositions of this class that we owe the extending of our knowledge.

Thus far, Judgment, be it particularly noticed, has been regarded as strictly singular. The only whole which has been examined is that of Intension, which is essentially an unit whole. Judgment becomes general when we judge that two or more objects resemble each other; and here I would call attention to the fact that while identity involves oneness, and is intimately at home among single objects, resemblance involves plurality, and has no place in the Whole of Intension.

In Singular Perception, as in every other mental process, be it observed, the conscious manifestations of the present moment are judged to be identical with the latest, later, late, past existence of the same. We do not regard the various manifestations, in time, of certain thoughts as so many different thoughts, but as so many distinguishable manifestations of *one* and the same thought. An essential condition of all knowing and feeling is this continuity of mental manifestations, in time, forming one thread of identity. The consciousness of the present trailing after it the memory of the consciousness gone before, gives to our thoughts and feelings an appreciable length, which would be wanting were every manifestation a mere flash unretained in memory to any perceptible extent.

In all consciousness, notice also, that there is a contrast realised in the flow of its several manifestations, in time. If we compare consciousness to the steam streaming from a locomotive in motion, we can, with no great stretch of the imagination, fancy we see inscribed upon the white streamer, present, latest, later, late. Thus, if memory does not fail, we have no difficulty in discriminating one part from another in the thread, or identical continuity, in time, of our thoughts and feelings. We cannot, as intelligent beings, break with the past, or the identical continuity of consciousness.

But we must also not overlook the fact that there are two

instances of identity which need to be distinguished: the one is that of which I have just been treating, namely, a chain of identity: the other that which, as shown above (Statement V.), the Proposition affirms. The former is not absolute identity, for the cognition which I have, even of myself, this moment is not absolutely one with the recollection which I have of myself each successive moment that follows. But the identity with which the affirmative proposition is concerned is absolute identity or unity. When it is affirmed that "Victoria is Queen of England," the import of the proposition is that the whole of which "Victoria" is a name is actually one with the whole of which "Queen of England" is a name.

In introspective psychology, as much as in any other branch of science, nice discrimination then cannot be dispensed with. Although some may detect no important distinction between the facts expressed by the terms "identity" and "resemblance," yet an exhaustive analysis demands that a distinction should be made between likeness as met with in individual continuity, as given above, and likeness as met with among a plurality of individuals. Although the Singular can be realised solely as a continuous thread of similar presentations, yet the fact must not be overlooked that the General always involves two or more singulars or chains of identity. There is, therefore, a further degree of evolution to be detected in the latter than the former. Seeing that this is the case, it becomes necessary that terms should be selected to mark the one stage of likeness from the other; and how can we do better than retain the term "identity" to signify the first stage of likeness, and "similarity" and "resemblance" to signify the second? Using these terms, then, as now defined, I proceed to state that while identity in thought and feeling involves oneness of objects (not of presentation, as present, latest, later, late), is primary in the Order of Evolution, and has its home in the Whole of Intension; resemblance involves plurality of objects or units, is more advanced in the Order of Evolution than identity, which it supposes, and has its home in the Whole of Extension.

Having thus suggested the nomenclature which it is desirable to use, we may proceed to show, in accordance with it, how the transition from Singular Judgment to General is effected. A proposition which affirms, for the first time, that the single object, A, is like the single object, B, expresses

that kind of judgment by which a general Whole is formed; for if we judge that A resembles B, the comparison gives rise to a concept or general notion, which can therefore be given a common name. Whence we see that General Judgment supposes Singular. There must, at the outset, be two Wholes of Intension, at least, in order to form a Whole of Extension, which latter is a numerical Whole, one of which the parts are similar to each other in all respects, save number or individuality, the singular element as, (A=$a\ a\ a\ a$) or A=1a, 2a, 3a, 4a).*

When, therefore, the Wholes of Intension and of Extension are mutually compared, there is to be seen this marked difference between them: in the former (A=$b\ c\ d\ e$), the Whole is the sum of qualities that are judged to be non-identical with each other: in the latter (A=$a\ a\ a\ a$), the Whole is judged to be the sum of parts that resemble each other, but yet are mutually distinct, the singular element not being lost in the general.

While identity and resemblance bear to each other the relation now described, there are two leading instances in which the cognition of resemblance comes in among mental processes almost from the outset. The attribute of existence and of time are judged to be possessed in common by all things. So far, then, the perception of resemblance follows immediately upon that of identity. But then, it is exerted, at this stage, solely in relation to One Whole (A=$b\ c\ d\ e$). It cognizes the fact that the qualities of this Whole resemble each other in their attribute of existence, and existence in time. On the other hand, in the more advanced stage, the perception of resemblance is exerted in relation to Two or more Wholes of Intension, cognizing in them not only likeness as regards existence and time, but also as regards various other qualities.

From the foregoing analysis, we may safely conclude that, in the Order of Evolution, every General Judgment that has been realized supposes Singular Judgments as its base. There is, however, an opinion adverse to this conclusion, held by Hamilton and Mansel, the examination of which opinion will cast some light upon this subject. "The fact is," says Mansel, "our earliest consciousness is neither of the individual, nor of the universal discerned as an universal, but of a confused mixture of the two, which requires a further de-

* 1 2 3 4, mutually differ; $a\ a\ a\ a$, mutually resemble. The former are in the sphere of the Singular, the latter, of the General.

velopment of thought to analyze into one or the other."* It has been shown above that the reflective analyst has to examine "this confused mixture," but, in the Order of Evolution, the General that is early developed, in harmony with the Law of the Obvious and Opportune, forms no exception as to involving Singular Judgments as its base; for the General cannot exist on any other condition. It is true that the *differentia* which divides class from class supposes the prior cognition and comparison of these classes, but this does not make it the less true that every class is built upon Singular Judgments. "Children," says Aristotle, "at first, call all men *father* and all women *mother*, but afterwards they distinguish one person from another."† This admits of being accounted for, in agreement with the view advocated in this paper as follows:—The child's mind operates in that mode that is most easy to it. It forms a notion of the father and the mother, but a notion that is not sufficiently differentiated to distinguish them from other men and women. But then, inadequate as the child's notion is, it, nevertheless, must be based on Singular Judgments. Indeed, we seem to have, in the child's style of judging, a type of much of the early judgment of the human race, a sort of judgment, as was shown above, too much taken up with likenesses and analogies, and two little with differences; but, at the same time, compelled, in the Order of Evolution, to have as much to do with the latter, as the very existence of the general notions that had been formed, necessitated.

In this paper I have had to confine myself to the Singular as pertaining to the elementary processes of thought. It could be shown, however, that the Singular holds an important place in every mental process, however advanced. Here an opening offers for stating that, although on the whole, the Singular is lower in the scale of dignity than the General, yet we must guard against the error of thinking that every instance of the latter is higher than every instance of the former; for in proportion as the Singular pertains to that which is higher in the Order of Evolution, in that proportion is it higher than the General that pertains to what is low in the same Order. In contending, therefore, for the necessity of attaching much importance to the Singular, it will be seen that I am not simply vindicating the importance of the Singular merely in the elementary, but also in the

* "Prolegomena Logica," p. 34.
† *Ibid.* p. 35.

more advanced processes of thinking. And it is the increasing complexity and superiority of objects, high in the Order of Evolution, that elicits, as I have taken some trouble to indicate, a more searching and discriminating style of observation and experiment, a more thorough organization of Singular Thought, than sufficed, in early times, for the construction of such sciences as were then within the reach of the human mind.

The priority, in the Order of Evolution, of the Singular to its related General knowledge, I hold, therefore, after long and careful excogitation, to be true, not only in Judgment, but also in Induction and Syllogizing. I am aware that Professor Jevons will greet this declaration of faith with a derisive smile, and call it "astounding and absurd," as he does the following question put by J. S. Mill:—"Why is a single instance in some cases, sufficient for a complete induction, while, in others, myriads of concurring instances, without a single exception known or presumed, goes such a little way towards establishing an universal proposition?"* I submit that the true reply to this question is wrapped up in the statement—That unless Induction can be made formally valid, just as Judgment is made sure or certified, in single instances, no accumulation of similar instances will avail to insure its validity. An exact inductive inference is not radically evolved out of a concurrence of like instances, but, as Mill hints in the passage just cited, from single instances of a certain stamp. How do we know that the ground sustains objects lying on its surface, or that objects depend on the ground for the position they occupy? Not by intuition or direct perception, but by indirect perception, by Inductive Reasoning.†

I would conclude this article with the remark, that if the cerebral physiologist is to succeed in locating, in the brain, the several functions it performs, these functions must cease to be sought in the vague regions of generality, abstraction, and *à priori* thinking. They must be sought, especially at the outset, in the study of singular and concrete knowing. It is only when this is accomplished, that we can hope, and that only by the regular approaches of scientific investment, to conquer the greater difficulties of the problem.

* "System of Logic," Book iii., chap. 3.

† The author's views on this question are given in "Mind," July, 1878.